C1 (Cont'd)

temperature is 400 to 800 °C, the second temperature is 200 to 500 °C, and the first temperature is higher than the second temperature.

REMARKS

Claims 1 and 3 are pending in the present application. Claim 1 has been amended. No new matter has been added. Upon entry of the present amendment, claims 1 and 3 will be pending. Reconsideration and allowance of claims 1 and 3 is requested.

I. The Claims are Clear and Definite

Claims 1 and 3 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Applicants traverse the rejection and respectfully request reconsideration because the claims are clear and definite.

Applicants believe that the claim language "decreasing the sensor operating temperature to a second temperature" clearly describes the relationship between the first and second temperatures. However, in an effort to further prosecution, Applicants have amended Claim 1 to even more clearly state that the first temperature is higher than the second temperature. As recognized in the Office Action, this amendment is supported by the specification. Support for the amendment can be found, for example, at page 3, lines 25-28. Accordingly, Applicants respectfully request the rejection under 35 U.S.C. § 112, second paragraph, be withdrawn.

II. The Claimed Inventions Would Not Have Been Obvious

Claims 1 and 3 stand rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Williams *et al.*, U.S. Patent No. 5,811,662 (the "Williams patent") in view of Baker *et al.*,U.S.

Patent No. 4,827,075 (the "Baker patent"). Applicants respectively traverse this rejection because the cited references are from different fields, and there is no evidence of record indicating that those of ordinary skill would have been motivated to combine them, much less to combine them in a manner that would have produced a claimed invention.

Patent claims cannot be found obvious in view of a combination of references unless the prior art itself suggests the desirability of the combination. *Berghauser v. Dann*, 204 U.S.P.Q. 393 (D.D.C. 1979); *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 221 U.S.P.Q. 929 (Fed. Cir. 1984). "A critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field." *In re Kotzab*, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000). To establish a *prima facie* case of obviousness, "there must be some teaching, suggestion or motivation in the prior art to make the specific combination that was made by the applicant." *In re Dance*, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998). "In other words, the examiner must show reasons that the skilled artisan, confronted with the same problem as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed." *In re Rouffet*, 47 USPQ2d 1453, 1458 (Fed. Cir. 1998).

Significantly, however, the Office Action does not identify any reason why the skilled artisan would have been motivated to combine the respective teachings of the Williams and Baker patents in a way that would have produced a claimed method. Although the Office Action asserts that it would have been obvious to one of ordinary skill in the art to combine the teachings

of the Williams patent to include steps from the process disclosed by the Baker patent, the Office Action does not appear to take account of the fact that the references are directed to different fields of endeavor. The Williams patent, for example, is directed to gas sensors, whereas the Baker patent is directed to a catalytic process for use in the production of hydrocarbons.

The Office Action also does not acknowledge that there are substantial differences in the design and operating parameters one would consider for catalytic processes as compared to gas sensing methods, nor does the Office Action explain why a person of ordinary skill seeking to develop gas sensing methods would have been motivated to consult the hydrocarbon production art. Indeed, the properties of a material one would choose for a hydrocarbon production process are different than the desired properties for a gas sensor. A gas sensitive material having a high density of sites on which the gas reaction can take place will generally be considered a good catalyst. Nevertheless, the gas sensitive material may have an electrical band structure that makes the material unsuited for gas detection (i.e. it may be an insulator). In contrast, a gas sensitive material may have a low density of sites on which the gas reaction can take place and, therefore, be classified as a poor hydrocarbon production catalyst. Nevertheless, its electrical band structure may make such a material an excellent candidate for gas detection. Therefore, a person of ordinary skill in the art, aware of the fundamental differences between catalytic processes and gas sensor applications, would not have been motivated to consult the Baker patent, much less modify the method of gas sensing disclosed by the Williams patent to include steps from the catalyst regeneration process disclosed by the Baker patent.

Further, the Baker patent does not consider the effect that the method of catalyst regeneration may have on the gas sensing behavior or the electrical resistivity of the catalyst. Accordingly, one skilled in the art would not have a reasonable expectation of success when modifying the method of gas sensing disclosed by the Williams patent to include steps from the catalyst regeneration process disclosed by the Baker patent.

Since there is no reason to believe that those of ordinary skill seeking to develop gas sensing methods would have been motivated to consult the hydrocarbon production art, much less to modify the gas sensing methods disclosed in the Williams patent to include steps from the hydrocarbon production process disclosed by the Baker patent, a *prima facie* case of obviousness has not been made. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of the claims under 35 U.S.C. § 103.

III. Conclusion

In view of the foregoing, Applicants submit that the present claims meet all the requirements for patentability. Accordingly, an indication of allowability and a notice of allowance is earnestly solicited. The Examiner is invited to contact Applicants' undersigned representative at (215) 557-5963 if there are any questions concerning Applicants' claimed inventions.

A marked-up version of the changes made by the current amendment is attached. The attached page is captioned **VERSION WITH MARKINGS TO SHOW CHANGES MADE.**

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Claim 1 has been amended.

1. **(Twice Amended)** A method of sensing the concentration of O_3 in a gas mixture using a semiconductor gas sensor having a resistivity sensitive to O_3, which comprises increasing the sensor operating temperature to a first temperature to allow the sensor surface to reset then decreasing the sensor operating temperature to a second temperature and analyzing the resultant resistance of the sensor at the second temperature, wherein the sensor is a layer of WO_{32} [and wherein] the first temperature is 400 to 800 $°C_2$ [and] the second temperature is 200 to 500 $°C_2$ and the first temperature is higher than the second temperature.